EXHIBIT III-8
ENDANGERED AND THREATENED SPECIES KNOWN OR LIKELY TO OCCUR IN JOHNSON COUNTY, KANSAS

Common Name	Scientific Name	Status
American Burying Beetle	*Necrophorus americanus*	Endangered (*)
Bald Eagle	*Haliaeetus leucocephalus*	Threatened (*)
Chestnut Lamprey	*Ichthyomyzon castaneus*	Threatened
Eastern Spotted Skunk	*Spilogale putorius interrupta*	Threatened
Eskimo Curlew	*Numenius borealis*	Endangered (*)
Flathead Chub	*Platygobio gracilis*	Threatened
Least Tern	*Sterna antillarum*	Endangered (*)
Northern Redbelly Snake	*Storeria occipitomaculata occipitomaculata*	Threatened
Pallid Sturgeon	*Scaphirhynchus albus*	Endangered (*)
Peregrine Falcon	*Falco peregrinus*	Endangered (*)
Piping Plover	*Charadrius melodus*	Threatened (*)
Sicklefin Chub	*Macrhybopsis meeki*	Endangered
Snowy Plover	*Charadrius alexandrinus*	Threatened
Sturgeon Chub	*Macrhybopsis gelida*	Threatened
Western Earth Snake	*Virginia valeriae elegans*	Threatened
Western Silvery Minnow	*Hybognathus argyritis*	Threatened
White-faced Ibis	*Plegadis chihi*	Threatened

Note: The above are state-listed species. If they are also on the Federal listing, either as Endangered or Threatened, this is indicated by an (*) in the Status column.

Source: State of Kansas, Department of Wildlife and Parks, April 1998.

In 1975, Dr. Mary J. Adair (1975) directed a pedestrian survey of approximately 585 acres before construction of the nitroguanidine manufacturing plant at the northwest corner of Sunflower. Deep cuts made by construction bulldozers were inspected for buried occupations, but none were observed. The survey found no evidence of prehistoric remains in the project area. A stone-lined well and fragments of china and metal items, however, were found at an unspecified location. Historic atlases show one farmstead within the surveyed area in 1874 (Heisler and Smith 1874) and another in 1902 (George Ogle and Company 1902).

Jim Feagins (1989) made a survey of 1.4 miles along a gravel access road passing through the northeast corner of Sunflower and connecting a neighboring stone quarry in 1989. The existing road required widening and resurfacing. Pedestrian survey and judgmental shovel tests were made over 15 acres. Site 14JO49 was reexamined and assigned to the Early to Middle Ceramic (Plains Woodland) period. No additional archeological work was performed, although Phase II testing was recommended should the planned improvement be made.

In 1990, Jim Feagins (1991) tested two sites recorded by Eoff and Hill (1968) on Kill Creek, 14JO429 and 14JO51, in preparation for quarry expansion. Feagins also recorded Site 14JO102h, two related masonry bridge abutments. The western portion of 14JO51, which lies within Sunflower boundaries, was not examined. Four test units were excavated in the eastern half of 14JO51 and the sod was removed with a bulldozer. Artifacts were confined to the plowzone (0-20 centimeters below ground surface (bgs)) and indicated a Middle Ceramic occupation. Auger cores to a depth of 130 centimeters bgs in two the excavation units failed to identify buried soils/occupations.

Dr. Patricia O'Brien (1996) surveyed a three-acre tract in the location of the proposed site of a series of administrative, research, and storage buildings to be constructed by the Department of Horticulture, Kansas State University. The tract is within a larger, 300-acre tract east of the N-Line complex, which is leased from the U.S. Army along Spoon Creek at the southeast side of Sunflower. A total of 41 shovel tests were made. No archeological sites were located on the upland location.

Dr. Donna Roper (1998) surveyed approximately 5.24 acres within a tract of about 120 acres on the east side of Spoon Creek, which is leased by the Department of Horticulture, Kansas State University from the U.S. Army. The survey was made along proposed access road right-of-ways and two sewage ponds. Both surface survey of plowed fields and shovel testing of grass covered areas were made. No archeological sites were found, although one, and possibly a second isolated flake, was found on the surface of a plowed plot. (A flake is a piece of stone debris struck off while shaping a stone tool.)

Nickens and Associates (Montgomery 1985) completed an archeological overview and management plan for Sunflower under contract with Woodward Clyde and the National Park Service for the U.S. Army Materiel Development and Readiness Command. A soil survey map (Knoebel and Davis 1928) was examined and interviews were conducted with Hercules, Incorporated staff. A total of 73 historic sites were identified using the soils survey map (Knoebel and Davis 1928), including farmsteads, schools, and a church. The six prehistoric sites were reported by the Hercules staff.

Geo-Marine, Inc. (Waite and Peter 1996) prepared a Cultural Resources Management Plan (CRMP) for Sunflower under contract with the U.S. Army Corps of Engineers, Fort Worth District. Waite and Peter reviewed the investigations discussed above. They also examined the 1857 U.S. Government Land Office surface plats and 3 historic atlases for Johnson County (Heisler and Smith 1874; George Ogle 1902 and 1922). Collectively the maps show 92 farmsteads, stores, three schools, two churches, a Friends meeting house, a creamery, a mill, historic trails and roads, and the villages of Lexington and Prairie Center present on the facility lands between 1854 and 1928. Waite and Peter (1996:I-35) stressed that 20 years of settlement occurred before the earliest atlas (1874) was published and that an undetermined number of short-term homesteads, encampments, and property caches are likely to exist that are not documented.

In 1996 the U.S. Army Corps of Engineers, St. Louis District, prepared a collections summary for Sunflower (U.S. Army NAGPRA Compliance Project, Technical Report No, 93). A total of one cubic foot of artifacts and one page of associated documentation were identified for the facility. Half of the artifacts and the page of documentation are located at the Kansas City Museum, Kansas City, Missouri. The assemblage was collected from 14JO49 by Feagins (1989). The second half are located at University of

Kansas Museum of Anthropology, Lawrence, Kansas. These objects were collected by Eoff and Hill (1968) and Adair (1975) from 14JO49, 14JO50, 14JO51, 14JO52, and 14JO53.

- **Prehistoric Archeological Resource Potential**

The prehistoric archeological resource potential at Sunflower is difficult to define accurately because of the lack of systematic survey and testing of most of the facility. Of the 9,065 acres enclosed by the reservation boundaries, only about 624 acres have been surveyed. Construction and operation of the facility between 1942 and the mid-1990s has resulted in heavy disturbance of much of the central third of the reservation, an estimated 3,303 acres. The areas between widely separated storage structures (magazines) and the classification yard vicinity may be minimally disturbed, but may be contaminated by spilled propellant. The portions of the reservation with the highest potential for prehistoric sites are along Captain, Spoon, and Kill creeks and their associated drainages, located around the periphery of Sunflower. In all, at least 5,138 acres remain to be surveyed for archeological sites.

Two surveys were made by Kansas Sate University. O'Brien (1996) surveyed a three-acre tract in the location of the proposed site of a series of administrative, research and storage buildings to be constructed by the Department of Horticulture, Kansas State University. The tract is within a larger, 300-acre tract east of the N-Line complex, which is leased from the U.S. Army along Spoon Creek at the southeast side of Sunflower. No archeological sites were located on the upland location. Roper (1998) surveyed approximately 5.24 acres within a tract of about 120 acres on the east side of Spoon Creek, which is leased by the Department of Horticulture, Kansas State University from the U.S. Army. The survey was made along proposed access road right-of-ways and two sewage ponds. No archeological sites were found.

Investigations by Eoff and Hill (1968) and Feagins (1989, 1991) have shown that prehistoric sites lie on the terraces and floodplain along Kill Creek at the northeast corner of Sunflower. Only one site, 14JO51, has been tested. The shallow, plowzone deposits in the eastern half of the site make it ineligible for inclusion in the National Register. Examination of archeological records at the Kansas SHPO (Kansas State Historical Society) has shown that prehistoric sites are common along drainages in the region. At least 50 sites have been located along Cedar Creek and its tributaries, Camp Creek and Little Cedar Creek, located three to four miles east of Kill and Spoon Creeks. Numerous sites have been found along the Wakarusa River four miles west of Captain Creek. Geomorphological investigations along the Wakarusa River also have shown that prehistoric sites are commonly buried under rapidly deposited post-settlement alluvium (PSA) as a result of erosion of cultivated fields over the last 140 years (Rolfe Mandel, personal communication with Chris Schoen, December 10, 1998). Sites and/or artifacts representative of all of the broad cultural traditions, from Paleoindian through Late Prehistoric might be found at Sunflower.

- **Historic Archeological Resource Potential**

Historically this portion of northeast Kansas was inhabited and controlled by the Kansa (Kaw) Indians. Other tribes, which entered the area to hunt, trade, or raid, were the Pawnee, Omaha, Ponca, and Osage. In 1825, the Kansa and Osage ceded lands in eastern Kansas to the United States. The ceded area was divided into reservations for several eastern tribes, including the Delaware (Lenape or Muncie), Iowa, Kaskaskia, Kickapoo, Miami, Otoe-Missouria, Peoria, Piankashaw, Potawatomie, Sauk (Sac) and Meskwaki (Fox), Shawnee, Wea, and Wyandotte. Sunflower is entirely within the Shawnee reserved lands. By 1870 most of these groups were relocated to new reservations in Indian Territory (Oklahoma). Villages and campsites associated with the Kansa and other visiting tribal groups may be located along the drainages at Sunflower. Cabins, lodges, and camps occupied by the Shawnee are expected on the reserved lands. Objects of European and American manufacture given as gifts, annuities, trade items, or purchased from stores would help to distinguish historic tribal occupations from prehistoric occupations.

The first Euroamericans in the region were explorers, traders, and trappers. In 1804 the Lewis and Clark expedition passed through the Kansas City area on their expedition up the Missouri River. Jacob Fowler traveled west on a segment of the Santa Fe Trail from near Kansas City in 1821 as did Jedediah Smith in 1824. The Chouteau family established several trade posts in western Missouri and eastern Kansas. The Santa Fe Trail, which began in Kansas City and was officially established in 1821, traversed six miles south of Sunflower. The Oregon Trail, established in 1834, passed though the southwestern corner of Sunflower, and was known as both the Independence Road and the Franklin to Westport Road in this location. Trails were traveled and monitored by dragoon, infantry, and later cavalry units, primarily from Fort Leavenworth, from the 1830s through the 1870s. The U.S. Army also tried to protect individuals from both militant pro-slavery and anti-slavery forces during the territorial and Civil War years (1854-1865). Campsites associated with travelers and military bivouacs are possible within Sunflower.

Euroamerican settlers began establishing homesteads and businesses in the Johnson County area in the 1850s. Initially lands were bought or leased from the Shawnee. Later, once the land was opened officially for settlement, patents were taken on 160-acre holdings. The town of Lexington, Kansas Territory, was established at the northern end of Sunflower near the Lawrence Road in 1855 by pro-slavery proponents, but not inhabited until 1857. The town, which included a few homes, a two-story hotel, post office, blacksmith, and general store, was abandoned in 1864. The hotel remained in operation, however, until 1894. DeSoto, located one mile north, was established as an abolitionist town in 1857 to respond to the otherwise pro-slavery dominated county. Prairie Center was another community once present on the current Sunflower reservation, at the north edge of the magazine storage buildings. It was established in 1871 and included a post office, store, blacksmith shop, woodworking shop, and two churches. In 1941 the village included a school, creamery, cider mill, store, blacksmith, grange store, service station and store, Friends Meeting house, Methodist church, and 14 homes. In that year, 92 farmsteads were reported on Sunflower lands. A third small community called String Town was located somewhere on the grounds between 1857 and at least 1928. A mill was constructed on Captain Creek at the southwest side of the reservation before 1874. A locally prominent dentist, Dr. Sam Roberts built a home on a small reservoir on Captain Creek in the early 1900s.

When the U.S. Army established the Sunflower Ordnance Works in 1941, all of the standing buildings were razed, except for the Roberts House, which was adapted for use as a recreational facility. While construction and operation of Sunflower has resulted in an undetermined degree of ground disturbance, especially in the north and central portions of the reservation, subsurface remains of various structures may remain. Farmsteads, the mill, and a school situated around the periphery of the facility are probably the least disturbed. Some of the buildings associated with Prairie Center, located in a relatively undisturbed area also may include intact subsurface deposits.

b. Architectural Resource Assessment

- **Previous Studies**

An architectural inventory was made by MacDonald and Mack Partnership in 1984 which summarizes the available data on the almost 1,000 World War II-related buildings. The remaining 200 plus structures date to the Cold War era. Also reported was the Roberts House (Building No. FH-3).

- **Description of Sunflower Structures**

Detailed descriptions of the World War II and Cold War era buildings at Sunflower were not available for this document. They are generally frame structures on concrete foundations or pads. Many are sheathed in corrugated tin. Earthen ramparts with timber framing are placed on the sides and back of most

manufacture and storage structures to contain accidental explosions. Latrines are small concrete buildings with sheet metal roofing. The power station buildings are constructed of brick.

The Roberts House is a two-story, yellow sandstone and wood frame house with massive chimneys and balconied double-height living space. The residence exhibits the vigorous, rustic masonry style popular in early twentieth-century Kansas City and vicinity (MacDonald and Mack Partnership 1984:17).

- **Assessment of National Register Eligibility**

To date only the architectural resources represented by the buildings and structures associated with the operation of Sunflower and the Dr. Sam Roberts House (Building No. FH-3) have been inventoried and evaluated for eligibility on the National Register of Historic Places. Six prehistoric archeological sites and two bridge abutments for a seventh site have been identified. The eastern half of one of these sites, 14JO51, was tested and that portion of the site was found to lack sufficient integrity to be significant under Criterion D of the implementing regulation of the National Historic Preservation Act (36 CFR 60).

The Cold War era buildings, structures, and objects at Sunflower are not considered significant because they do not meet Criterion G of the implementing regulation for exceptional significance applied to resources less than 50 years in age (36 CFR 60).

An Inactivation Programmatic Agreement was established between the U.S. Department of the Army, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers in 1992. The Kansas SHPO concurred with the determination that the military-related structures and buildings at Sunflower are ineligible for inclusion in the National Register of Historic Places based on the lack of integrity. Impacts to the World War II and Cold War architectural resources at the facility have been mitigated according to the conditions of the Inactivation PA. No additional management consideration of these architectural resources is necessary.

The Roberts House (Building No. FH-3) was classified by MacDonald and Mack Partnership (1984) as eligible for inclusion in the National Register under Criteria B and C, based on its importance as a local architectural landmark and as an intact example of a historic regional building style. The building was documented by Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) Level IV recordation.

- **Criterion A**

Currently no site, building, structure, district, or object has been determined significant under Criterion A: *"associated with events that have made a significant contribution to the broad pattern of our history"* (36 CFR 60, Section 60.6, Criteria for Evaluation).

- **Criterion B**

The Roberts House (Building No. FH-3) has been determined significant under Criterion B: *"associated with the lives of persons significant in our past"* (36 CFR 60, Section 60.6, Criteria for Evaluation). Dr. Roberts was a prominent local dentist.

- **Criterion C**

The Roberts House (Building No. FH-3) has been determined significant under Criterion C: *"embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a*

master, or that possess high artistic values, or that represent significant and distinguishable entity whose components may lack individual distinction" (36 CFR 60, Section 60.6, Criteria for Evaluation). The residence is identified as *"a local architectural landmark and as an intact example of a historic regional building style"* (MacDonald and Mack Partnership 1984:17).

- **Criterion D**

Currently no site, building, structure, district, or object has been determined significant under Criterion D: *"has yielded, or may be likely to yield, information important in prehistory or history"* (36 CFR 60, Section 60.6, Criteria for Evaluation). Archeological resources most often are evaluated for eligibility in the National Register under this criterion.

7. Hazardous Substances and Other Contamination Issues

a. Introduction

The primary reference used in preparing this section was the *Environmental Baseline Survey Report (EBS)* (Aguirre Engineers, October 1998). The EBS contains a description of the findings of many other investigations and reports concerning the environmental conditions at Sunflower. A second reference used to prepare this section is the *Installation Action Plan* (U.S. Army Corps of Engineers, Kansas City District, February 1998, revised March 1999). The final *Resource Conservation and Recovery Act (RCRA) Facility Investigation Report (RFI)* for Sunflower (Law Environmental, Inc., February 1997) was also consulted for specific issues. The main purposes of the RFI were to: characterize the nature, extent, and rate of migration of hazardous substances or hazardous constituents suspected of being released to the environment and to support the development and evaluation of corrective measures alternatives. KDHE provided additional information regarding the status of solid waste management units (SWMUs), other areas of concern, and recommended remedial actions.

b. Methodology

- **Site History Review**

The review of current site conditions in this EA summarizes the findings of the EBS, the *Installation Action Plan*, and the RFI report. Additional reports addressing specific SWMUs and waste issues were also reviewed to supplement the general descriptions and to analyze the status of the remediation work. According to the literature reviewed, 54 SWMUs have been identified to date at Sunflower (Exhibit III-9). SWMUs are areas that are known to have been used for waste management purposes and have a potential for contamination, based on historical facility information as well as investigation data.

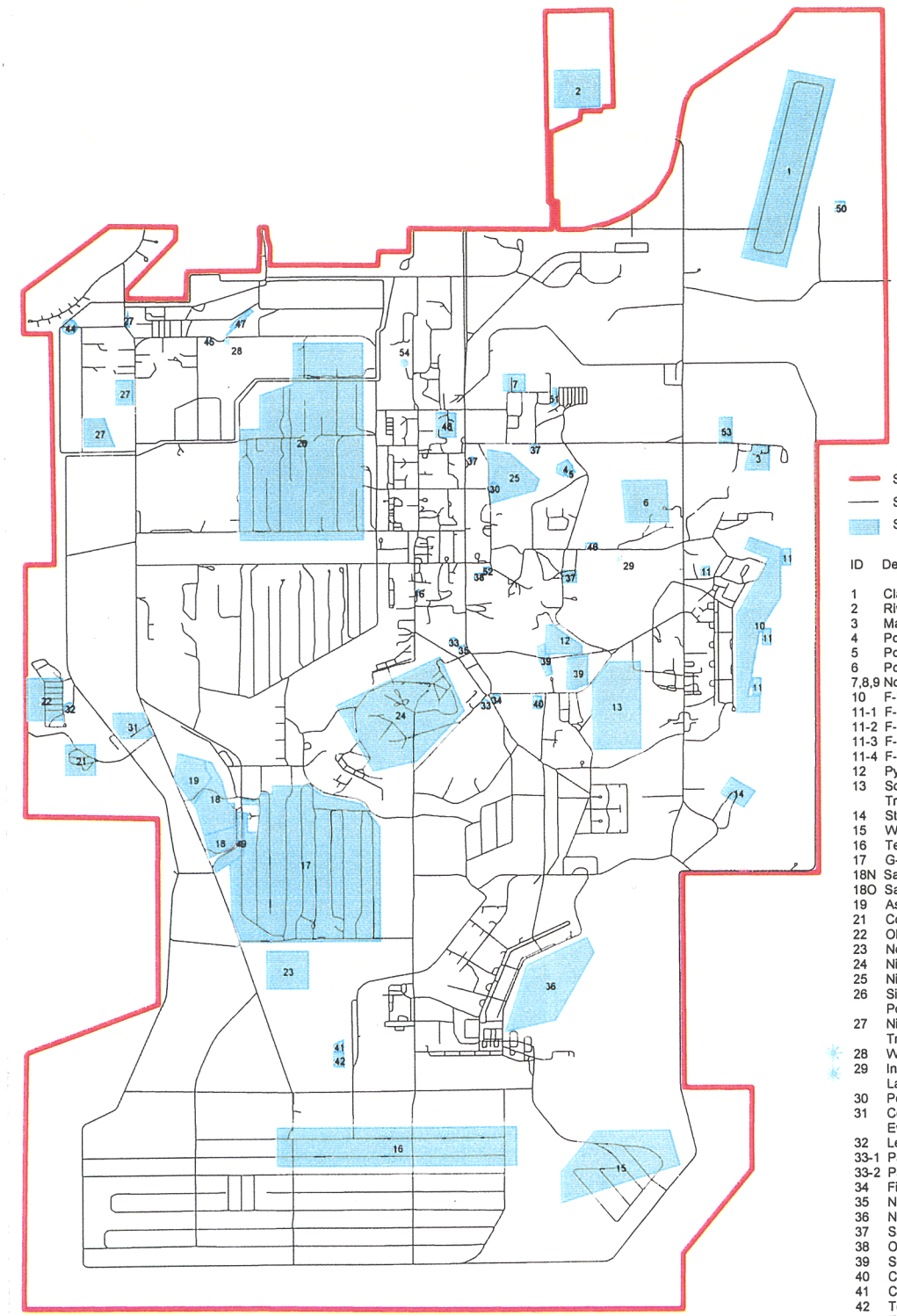
This section reports on the status of the 54 SWMUs. The SWMU identification will follow the naming convention used in the *Installation Action Plan.*

- **Regulatory File Review of Existing Literature–EBS**

One of the purposes of the EBS was to identify, characterize, and document the presence or likely presence of a release or threatened release of hazardous substances or petroleum products at Sunflower. Areas containing or suspected of containing asbestos-containing material (ACM), lead-based paint (LBP)) and other substances which are not petroleum products or CERCLA hazardous substances are delineated separately as non-CERCLA related. The EBS described the previously identified areas of known and potential

SOLID WASTE MANAGEMENT UNITS

EXHIBIT III-9



Sunflower AAP Boundary
Sunflower AAP Streets
SWMU Boundaries

ID	Description
1	Classification Area
2	River Treatment Plant Lagoons
3	Main Sewage Treatment Plant
4	Pond "A" & Sludge Disposal Area
5	Pond "A" Neutralization Area
6	Pond "B" & Sludge Disposal Area
7,8,9	North Acid Area
10	F-Line Ditches
11-1	F-Line Settling & Blender Ponds
11-2	F-Line Settling & Blender Ponds
11-3	F-Line Settling & Blender Ponds
11-4	F-Line Settling & Blender Ponds
12	Pyote's Pond & Sludge Disposal Area
13	South Acid Area Liquid Waste Treatment Plant
14	Static Rocket Test Area
15	Waste Storage Magazines
16	Temporary Waste Storage Magazines
17	G-Line Area Ditches
18N	Sanitary Landfills (New)
18O	Sanitary Landfills (Old)
19	Ash Landfill
21	Contaminated Materials Burning Ground
22	Old Explosive Waste Burning Ground
23	New Explosive Waste Burning Ground
24	Nitroglycerine Ditches
25	Nitrocellulose Area Ditches
26	Single Base Area-Waste Water Settling Ponds
27	Nitroguanidine Area-Sac Liquid Waste Treatment Plant & Evaporative Lagoon
28	Waste Calcium Treatment Area (Closed)
29	Industrial Wastewater Treatment Lagoons (Closed)
30	Pesticide Handling Area
31	Contaminated Waste Processor Evaporative Lagoon
32	Lead Decomtamination & Recovery Unit
33-1	Paste Area Half Tanks & Settling Ponds
33-2	Paste Area Half Tanks & Settling Ponds
34	Five Corners - Settling Ponds
35	Nitroglycerine Area - Settling Ponds
36	N-Line Ditches
37	Sand Blast Area
38	Oil Separator
39	South Acid Drainage Ditch
40	Calcium Carbide - Disposal Area
41	Calcium Carbonate Cake Landfill
42	Temporary Sanitary Landfill
44	Tank - T-748
45	Calcium Cyanamide-Conveyers & Storage Units
46	Decontamination Oven
47	Nitroguanidine Prod Area - Sumps
48	Nitroguanidine Support Area
49	Road Southeast of Sanitary Landfill
50	Abandoned Dump Site Near Kill Creek
51	Battery Handling Area
52	Paint Bay
53	Construction Debris Landfill/Waste Pile
54	Flourescent Tube Well

N

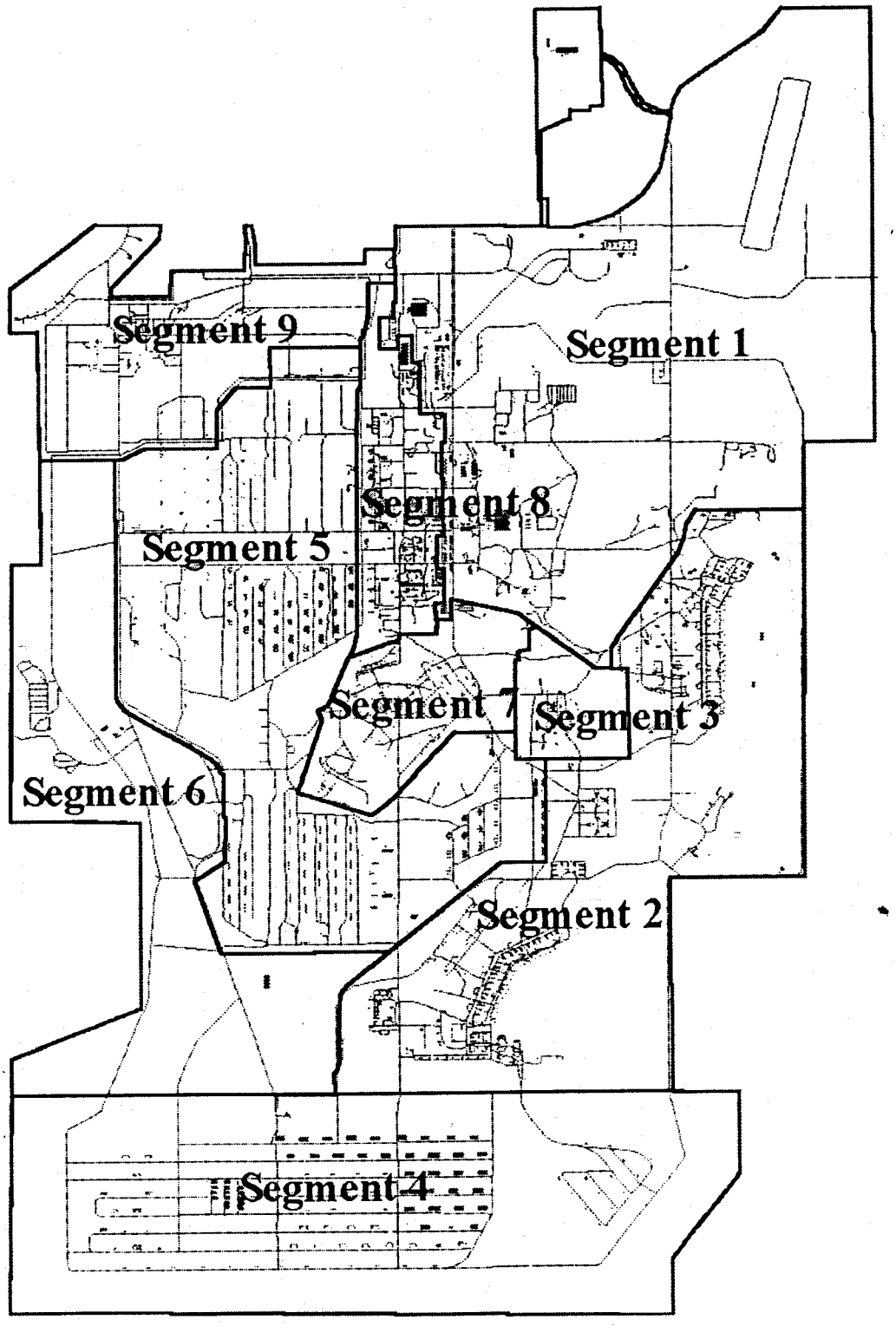
0.5 0 0.5 Miles

Source: SFAAP SWMU summary, 1998; SF AAP Environmental Baseline Survey, US Army, Industrial Operations Command (IOC), Oct. 1998
BOOZ•ALLEN & HAMILTON 18 JAN. 1999

Louis Berger & Associates, Inc.

EBS SEGMENT LOCATIONS

EXHIBIT III-10



N

0 1 Miles

Sunflower Boundary
Streets
EBS Segment Boundaries
Sunflower Buildings
Segment 1 EBS Segment ID Numbers

Source: SFAAP Environmental Baseline Survey
US Army, Industrial Operations Command (IOC), Oct. 1998
BOOZ•ALLEN & HAMILTON 18 JAN. 1999

Louis Berger & Associates, Inc.

contamination, the non-CERCLA related contamination, remediation activities, and other potential contamination areas on a segment-by-segment basis. The EBS divided Sunflower into nine segments -- geographical subdivisions based on similar process operations. A segment may contain more than one process area. Exhibit III-10 presents the nine segments of the facility.

One of the processes the Army has employed to address environmental problems at Sunflower described in the EBS is the *Environmental Stabilization Program* (ESP). As a part of readying the facility for potential disposal, a government contractor is conducting the ESP in phases. The purpose of the ESP process is to decontaminate and stabilize property that may be unsafe for entry due to structural deficiencies or from explosives contamination. Under the ESP, buildings will be burned without prior removal of the asbestos or lead based paint that is present in many of the buildings at Sunflower. Phase I of the ESP consists of burning in place production facilities that previously manufactured nitrocellulose (NC), nitroglycerin (NG), multi-based propellant, or were support facilities for propellant manufacture. Phase II consists of burning in place production facilities that were originally omitted from the Phase I listing. The Army has awarded ESP contracts involving at least 1025 buildings. The ESP will continue after transfer in the event disposal of all of a portion of Sunflower occurs prior to completion.

c. Findings

The following summarizes hazardous substance and other contamination issues for the nine Sunflower segments.

- **Segment 1**

Segment 1 is the area that was used mainly for support facilities. It consists of approximately 2,183 acres and contained 254 facilities (currently, 220 facilities exist). The principal facility processes in Segment 1 are in the following areas; river intake area, water treatment plant/filtration area, main sewage treatment plant, industrial wastewater treatment plant, power area, north acid area, office paper burning ground, and decontamination oven.

The Industrial Wastewater Treatment Plant (IWWTP) is a property currently being leased to Kansas Wastewater Inc. to treat non-hazardous wastewater on a commercial level. An EA was prepared by Alliant Techsystems, Inc. for the Army, and completed in May 1997 for leasing and operating the IWWTP by Kansas Waste Water Inc. The EA concluded that there would be no significant impact resulting from leasing the IWWTP to Kansas Waste Water Inc.

Previously identified areas of known and potential contamination in Segment 1 include: SWMUs 1, 2, 3, 4, 5, 6, 7, 8, 9, 20, 25, 29, 30, 37, 38, 46, 50, 51, 52, 53, and an abandoned drum site. The following paragraphs provide a summarized description of these areas.

Classification Area, SWMU 1 - The Classification Area occupies approximately 42 acres along the former railroad yard. Incoming raw materials were sorted for diversion to the appropriate receiving facility within Sunflower. Although hazardous substances were not produced, the handling of certain raw materials in this area had the potential for contamination. The EPA has recommended further assessment of Kill Creek to determine if SWMU 1 is affecting the ecology of the stream. The *Installation Action Plan* has indicated no further action necessary for this SWMU based on EPA target risk range and hazard index value.

River Water Treatment Plant, Lagoons, and Dredged Material (Lime Sludge, Sludge/Backwash), SWMU 2 - This site occupies approximately 7.4 acres. Kansas River water was treated with lime and alum for clarification, filtered through activated carbon, and chlorine was added. Sludge from the treatment plant

was used to construct two lagoons south of the facility. Materials dredged from the lagoons were landfilled adjacent to the lagoons. Mounds of grass-covered dredged materials are on the west side of the upper lagoon. The wastes generated include lime, filter backwash solids, nitroguanidine (NQ), acidic wastewater, and calcium cyanamide. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined. This site is the nearest SWMU to the Kansas River and the effluent from the lagoons is currently being discharged under permit to National Pollutant Discharge Elimination System (NPDES) Outfall 002. KDHE has recommended further sampling of Hansens Creek to determine if it is being impacted by releases from the lagoons. Hansens Creek is south of SWMU 2 and flows northeast into Kill Creek.

Main Sewage Treatment Plant and Disposal Pond, SWMU 3 - The Main Sewage Treatment Plant (STP), a three-acre site, treats sanitary wastewater from most of the installation. Primary waste treated there is domestic sewage. Wastewater from various production facilities and laboratories, including a photographic laboratory, may have contained hazardous constituents. Heavy metals, volatile organic compounds (VOCs) (in sediments), nitrate-nitrite nitrogen, and sulfate have been detected in a downstream surface water sample. Total recoverable petroleum hydrocarbons (TRPH), organopesticides, polychlorinated biphenyl (PCB)-1260, poly-aromatic hydrocarbons (PAHs), and metals have been detected in sludge. Heavy metals, pesticides, PCBs, and unknown constituents are contaminants of concern. Groundwater, surface water, and soil are media of concern. The extent of contamination is undetermined. Additional sampling is needed.

Pond A and Sludge Disposal Area, SWMU 4 – Pond A which is approximately two acres in size, received wash out water from acid storage tanks and wastewater from the NQ support area, shops in the pesticide handling area, sandblasting area, salvage yard, and the North Acid Area. Reported impacts include metals in groundwater and VOCs, metals, and NC in sludge. Other contaminants of concern are phthalates, PAHs, and nitrate-nitrite nitrogen. Large quantities of NC could have reactive characteristics. The extent of contamination is undetermined. Additional groundwater sampling is proposed as well as a Corrective Measures Study under RCRA. The RFI recommends that the pond be closed following applicable regulations.

Pond A Neutralization Area, SWMU 5 - The Pond A acid neutralization area is on the southeast edge of Pond A. The NC manufacturing process produced wastewaters containing residual dissolved nitric and sulfuric acids, and NC fines. Neutralized wastes and unsettled flocculent were discharged to an open drainage ditch leading to Pond B. Acidic wastewater neutralized by burnt lime slurry was the primary constituent at the facility. The RFI indicates metal impacts to groundwater and VOCs, metals, and NC in sludge. Other contaminants of concern include acid and ordnance. The extent of contamination is undetermined. The RFI suggests that groundwater should be investigated in conjunction with SWMU 4.

Pond B and Sludge Disposal Area, SWMU 6 - Pond B, downstream of Pond A, has a surface area of approximately nine acres. It is an unlined impoundment overlying limestone bedrock. Originally used for sedimentation of solids from neutralized wastewater discharged from SWMU 5, the pond is currently used for runoff detention, flow control from Pond A, and receiving effluent from the Industrial Waste Treatment (IWT) lagoons. Pond B discharges into Kill Creek. The RFI indicates ammonia, metals, and sulfate impacts to groundwater; metals, nitrate-nitrite, ammonia, sulfates, and total dissolved solids (TDS) in surface waters; metals, NC, and VOCs in pond sediments; VOCs, semi-volatile organic compounds (SVOCs), and pesticides in Kill Creek sediment. There is a carcinogenic risk due to NG in the groundwater. The extent of contamination is undetermined. The risk assessment indicated a potential risk exists through exposure to Kill Creek surface water by recreational receptors.

North Acid Area–Chromate Area, SWMU 7 - The Chromate Area is approximately one half acre within the North Acid Area (SWMUs 7, 8, and 9) and was the location of a former treatment unit. The wastes generated consist of chromium-contaminated wastewater and chromate liquid that may have been disposed